

- 8
37. (NEW) A polynucleotide encoding a chimeric enzyme comprising:
a) a localization signal of an alpha-1,3 galactosyl transferase enzyme;
b) a catalytic domain of a fucosyl transferase that competes with the galactosyltransferase for substrate.
- 2
8
38. (NEW) The polynucleotide of claim 36, wherein the fucosyl transferase is H-transferase or secretor-type alpha-1,2 fucosyl transferase.
- 9
8
39. (NEW) The polynucleotide of claim 37, wherein the fucosyl transferase is H-transferase or secretor-type alpha-1,2 fucosyl transferase.
- 3
40. (NEW) The polynucleotide of claim 36, wherein the glycosyltransferase localization signal comprises a cytoplasmic domain of a glycosyltransferase.
- 10
8
41. (NEW) The polynucleotide of claim 37, wherein the localization signal comprises a cytoplasmic domain of a glycosyltransferase.
- 4
42. (NEW) The polynucleotide of claim 36, wherein the localization signal is MNVKGR (SEQ. ID. No. 11), MNVKGK (SEQ. ID. No. 12), or MVVKGK (SEQ. ID. No. 13).
- 11
8
43. (NEW) The polynucleotide of claim 37, wherein the localization signal is MNVKGR (SEQ. ID. No. 11), MNVKGK (SEQ. ID. No. 12), or MVVKGK (SEQ. ID. No. 13).
- 5
44. (NEW) A vector comprising the polynucleotide of claim 36.
- 12
8
45. (NEW) A vector comprising the polynucleotide of claim 37.
- 6
5
46. (NEW) The vector of claim 44, wherein the fucosyl transferase is H-transferase or secretor-type alpha-1,2 fucosyl transferase.
- 13
12
47. (NEW) The vector of claim 46, wherein the fucosyl transferase is H-transferase or



secretor-type alpha-1,2 fucosyl transferase.

15
48. (NEW) A method for reducing an amount of gal-alpha- (1,3)- gal present on cells comprising:

- a) transducing the cells with a chimeric enzyme comprising:
 - i) a glycosyltransferase localization signal directing localization of the chimeric enzyme to the Golgi; and
 - ii) a catalytic domain of a fucosyl transferase that competes with galactosytransferase for substrate;
- b) expressing the chimeric enzyme in the cells, wherein the expression of the chimeric enzyme in the cells is effective to reduce the amount of gal-alpha- (1,3)- gal present on the cells.

18
49. (NEW) A method for reducing an amount of gal-alpha- (1,3)- gal present on cells comprising:

- a) transducing the cells with a chimeric enzyme comprising:
 - i) a localization signal of an alpha- 1,3 galactosyl transferase directing localization of the chimeric enzyme to the Golgi; and
 - ii) a catalytic domain of a fucosyl transferase that competes with galactosytransferase for substrate;
- b) expressing the chimeric enzyme in the cells, wherein the expression of the chimeric enzyme in the cells is effective to reduce the amount of gal-alpha- (1,3)- gal present on the cells.

16 *15*
50. (NEW) The method of claim *48*, wherein the fucosyl transferase is H-transferase or secretor-type alpha-1,2 fucosyl transferase.

19 *18*
51. (NEW) The method of claim *49*, wherein the fucosyl transferase is H-transferase or secretor-type alpha-1,2 fucosyl transferase.

17 *15*
52. (NEW) A method of claim *48*, wherein said transforming is *ex vivo*.

26
53. (NEW) A method of claim *18*, wherein said transforming is *ex vivo*.

7
54. (NEW) A method for reducing hyperacute rejection of transplanted porcine cells comprising transforming the cells with the polynucleotide of claim *36* prior to transplantation, wherein expression of the chimeric enzyme is effective to reduce gal-alpha- (1,3)- gal present on the cells.

4
55. (NEW) A method for reducing hyperacute rejection of transplanted porcine cells comprising transforming the cells with the polynucleotide of claim *37* prior to transplantation, wherein expression of the chimeric enzyme is effective to reduce gal-alpha- (1,3)- gal present on the cells.